FIG. 1A

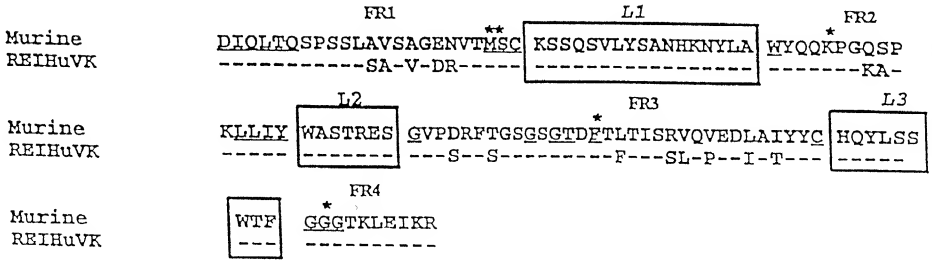

FIG. 1B

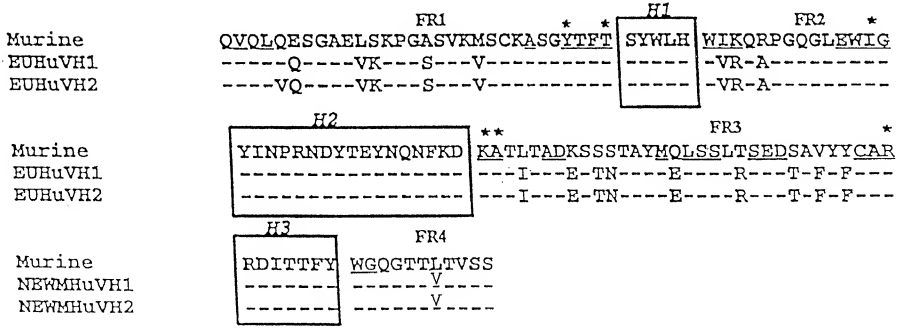

FIG. 2A

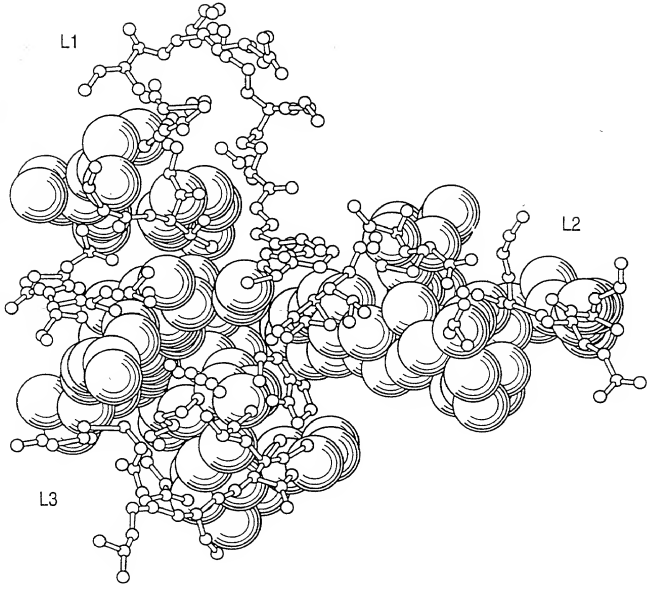

FIG. 2B

FIG. 3A

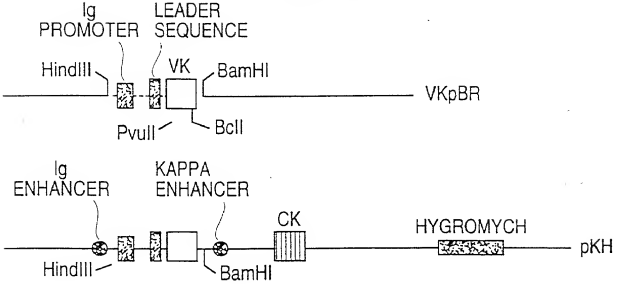

FIG. 3B

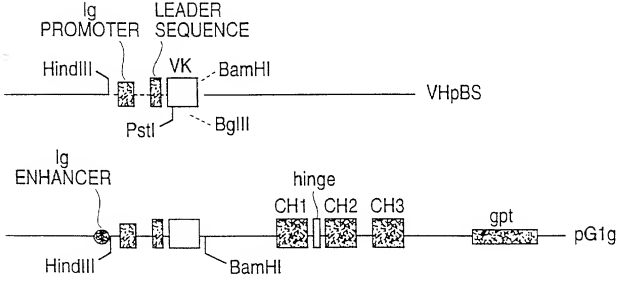

FIG. 4A

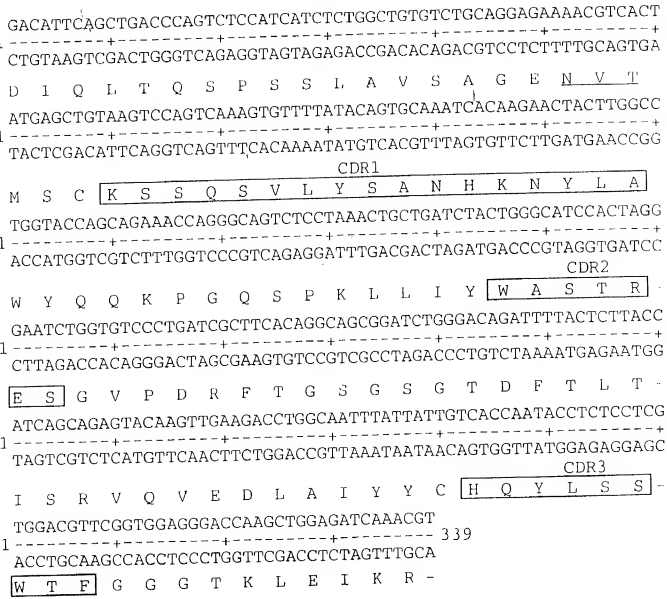
GACATTCAGCTGACCCAGTCTCCATCATCTCTGGCTGTGTCTGCAGGAGAAAACGTCACT
CTGTAAGTCGACTGGGTCAGAGGTAGTAGAGACCGACACAGACGTCCTCTTTTGCAGTGA
D I Q L T Q S P S S L A V S A G E N V T
ATGAGCTGTAAGTCCAGTCAAAGTGTTTTATACAGTGCAAATCACAAGAACTACTTGGCC
TACTCGACATTCAGGTCAGTTTCACAAAATATGTCACGTTTAGTGTTCTTGATGAACCGG
CDR1
M S C K S S Q S V L Y S A N H K N Y L A
TGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTGCTGATCTACTGGGCATCCACTAGG
ACCATGGTCGTCTTTGGTCCCGTCAGAGGATTTGACGACTAGATGACCCGTAGGTGATCC
CDR2
W Y Q Q K P G Q S P K L L I Y W A S T R -
GAATCTGGTGTCCCTGATCGCTTCACAGGCAGCGGATCTGGGACAGATTTTACTCTTACC
CTTAGACCACAGGGACTAGCGAAGTGTCCGTCGCCTAGACCCTGTCTAAAATGAGAATGG
E S G V P D R F T G S G S G T D F T L T -
ATCAGCAGAGTACAAGTTGAAGACCTGGCAATTTATTATTGTCACCAATACCTCTCCTCG
TAGTCGTCTCATGTTCAACTTCTGGACCGTTAAATAATAACAGTGGTTATGGAGAGGAGC
CDR3
I S R V Q V E D L A I Y Y C H Q Y L S S -
TGGACGTTCGGTGGAGGGACCAAGCTGGAGATCAAACGT
ACCTGCAAGCCACCTCCCTGGTTCGACCTCTAGTTTGCA
W T F G G G T K L E I K R -

FIG. 4B

FIG. 5A

FIG. 5B

FIG. 6

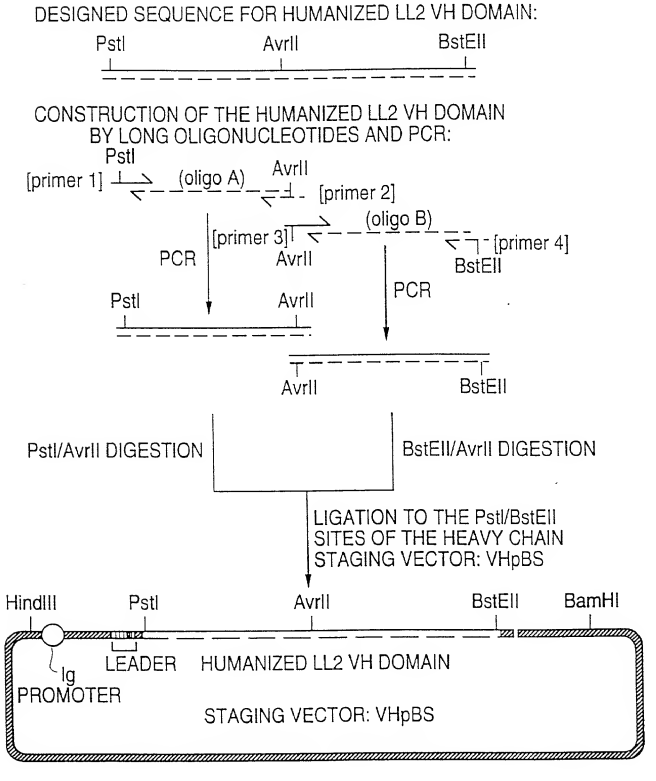
DESIGNED SEQUENCE FOR HUMANIZED LL2 VH DOMAIN:
PstI
AvrII
BstEII
CONSTRUCTION OF THE HUMANIZED LL2 VH DOMAIN
BY LONG OLIGONUCLEOTIDES AND PCR:
PstI
[primer 1]
(oligo A)
AvrII
[primer 2]
(oligo B)
[primer 3]
[primer 4]
PCR
AvrII
BstEII
PstI
AvrII
PCR
AvrII
BstEII
PstI/AvrII DIGESTION
BstEII/AvrII DIGESTION
LIGATION TO THE PstI/BstEII
SITES OF THE HEAVY CHAIN
STAGING VECTOR: VHpBS
HindIII
PstI
AvrII
BstEII
BamHI
Ig
PROMOTER
LEADER
HUMANIZED LL2 VH DOMAIN
STAGING VECTOR: VHpBS

FIG. 7

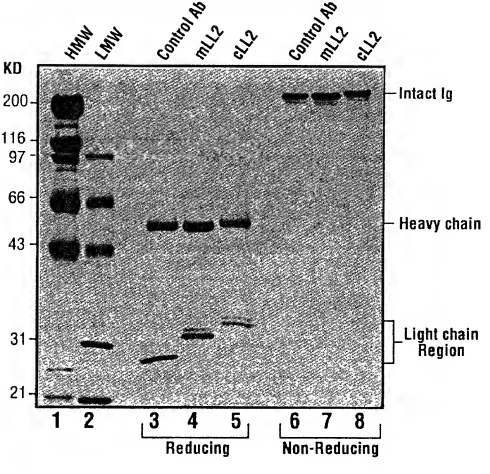
HMW
LMW
Control Ab
mLL2
cLL2
Control Ab
mLL2
cLL2
KD
200
116
97
66
43
31
21
Intact Ig
Heavy chain
Light chain
Region
1 2
3 4 5
6 7 8
Reducing
Non-Reducing

FIG. 8

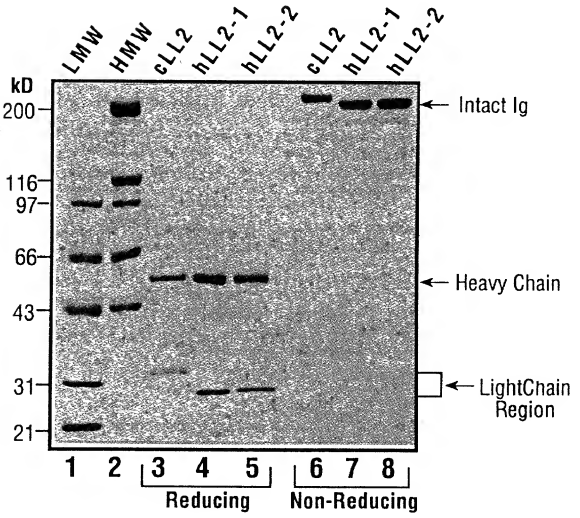
LMW
HMW
cLL2
hLL2-1
hLL2-2
cLL2
hLL2-1
hLL2-2
kD
200
116
97
66
43
31
21
Intact Ig
Heavy Chain
LightChain
Region
1 2 3 4 5 6 7 8
Reducing
Non-Reducing

FIG. 9

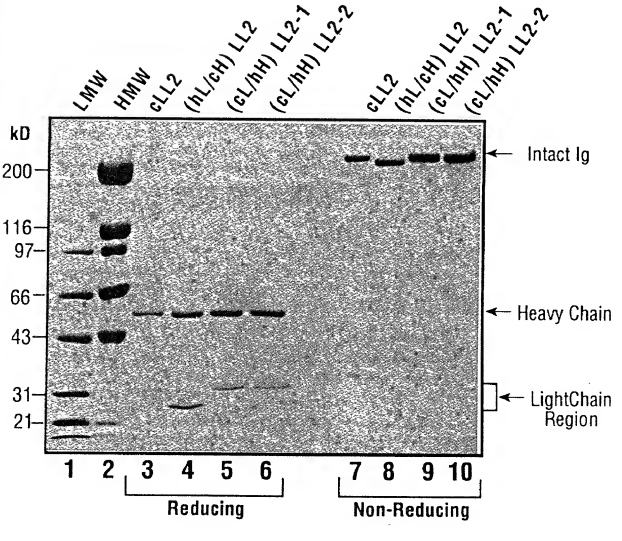
LMW
HMW
cLL2
(hL/cH) LL2
(cL/hH) LL2-1
(cL/hH) LL2-2
cLL2
(hL/cH) LL2
(cL/hH) LL2-1
(cL/hH) LL2-2
kD
200
116
97
66
43
31
21
Intact Ig
Heavy Chain
LightChain
Region
1 2 3 4 5 6 7 8 9 10
Reducing
Non-Reducing

FIG. 10

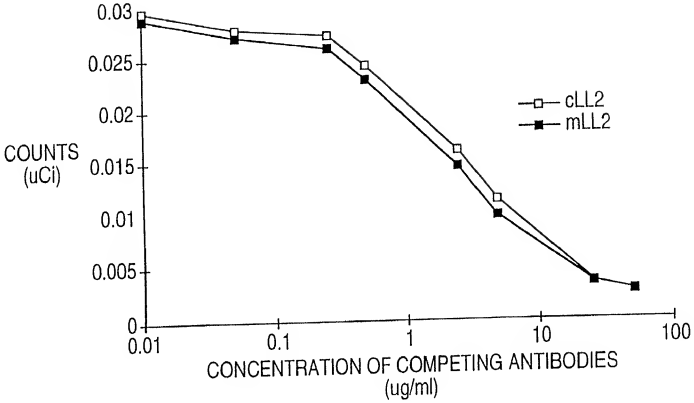

FIG. 11A

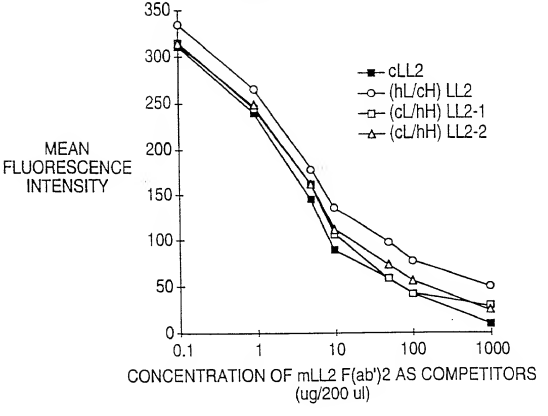

FIG. 11B

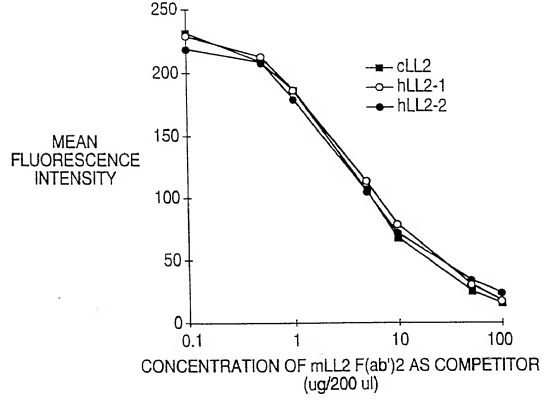

FIG. 12

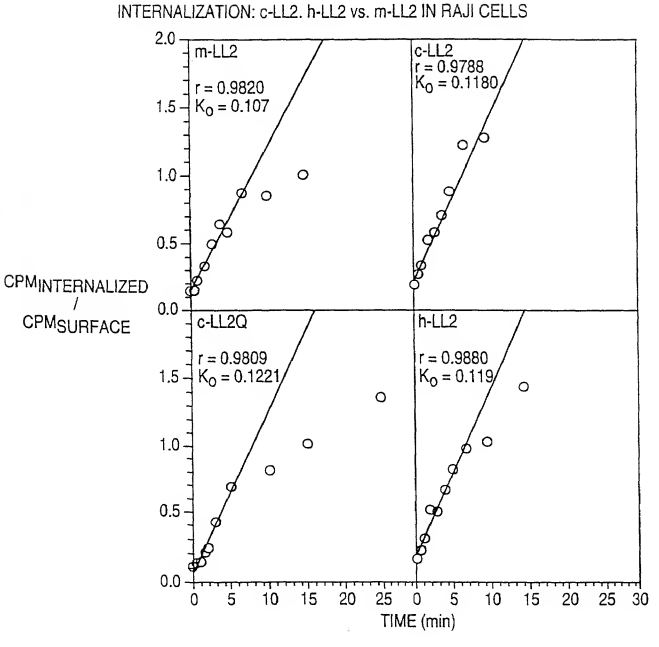

FIG. 13

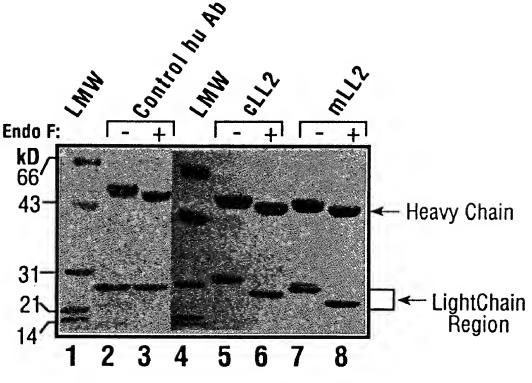

FIG. 14